

REMARKS

Entry of the foregoing, re-examination and reconsideration of the subject application, as amended, pursuant to and consistent with 37 C.F.R. §1.112, and in light of the remarks which follow, are respectfully requested.

The claims have been amended in response to issues raised in the Office Action. Claims 1, 3-15 and 17-20 remain pending in this application.

Claims 2, 4, 9-11 and 16 were rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth in paragraph (2) of the Office Action. Reconsideration and withdrawal of this rejection is requested in view of the above amendments and the following comments.

The issue raised in paragraph 2(a) of the Office Action has been obviated by changing the word "and" to --or-- in those claims where a description of an element of a formula has included a list of suitable groups. The issue raised in paragraph 2(b) of the Office Action has been obviated by adding suitable Markush terminology to claim 4 and by adding the word --and-- between the recitation of formula S-8 and formula S-9. Accordingly, the rejection under §112, second paragraph, should be withdrawn and such action is respectfully requested.

Claims 1, 3-8, 12-14 and 17-20 have been rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent 4,246,154 to Yao for reasons set forth in paragraph (4) of the Office Action. Reconsideration of this rejection is requested for the following reasons.

Claims 2 and 16 were not rejected on this ground because Yao '154 did not disclose oil-soluble dyes having the structure of general formula (I). The feature of claim 2 has

been added to claims 1 and 12 and the feature of claim 16 has been added to claim 14. Accordingly, the §102(b) rejection of claims 1, 3-8, 12-14 and 17-20 over Yao '154 should be withdrawn and such action is respectfully requested.

Claims 2, 9, 10 and 16 were rejected under 35 U.S.C. §103(a) as unpatentable over Yao '154 in view of JP 03-231975 or JP 09-059552 for the reasons expressed in paragraph (7) of the Office Action. Reconsideration of this rejection is requested in view of the following.

The ink compositions disclosed in Yao '154 contain vinyl polymer particles prepared from at least one monomer having a free carboxylic acid group, sulfonic acid group, phosphoric acid group or salt thereof (column 2, line 60 to column 3, line 30). In other words, the vinyl polymers used in the ink compositions of Yao '154 require a monomer having an ionic group.

On the other hand, the present claims call for a nonionic oil-soluble polymer, i.e. a polymer which does not have an ionic group. Note page 36, lines 10-11 of the present specification. This is an essential feature of the presently claimed invention. All the polymers listed in the chart bridging columns 5-6 and 7-8 of Yao '154 contain ionic groups. There is no suggestion in Yao '154 that nonionic oil-soluble polymers could be used as the vinyl polymers in the ink compositions.

The secondary references do not supply the aforementioned deficiency in the disclosure of Yao '154. Thus, neither JP '975 nor JP '552 contains any disclosure or suggestion which would motivate those of ordinary skill in this art to replace the ionic vinyl polymers required by Yao '154 with the nonionic polymers set forth in the present

claims. Accordingly, the §103(a) rejection based on Yao '154 in view of JP '975 and JP '552 should be withdrawn and such action is respectfully requested.

Claims 2 and 11 have been rejected under 35 U.S.C. §103(a) as unpatentable over Yao '154 in view of U.S. Patent 5,508,421 to Suzuki et al for reasons expressed in paragraph (8) of the Office Action. Reconsideration of this rejection is requested for the following reasons.

Yao '154 does not disclose or suggest using nonionic oil-soluble polymers. The ink-jet ink disclosed in Example 4 of Suzuki '421 does not contain a nonionic oil-soluble copolymer. Accordingly, the combined disclosures of Yao '154 and Suzuki '421 does not disclose or suggest the presently claimed invention and the §103(a) rejection based on these patents should be withdrawn.

Claim 15 was rejected under 35 U.S.C. §103(a) as unpatentable over Yao '154 in view of U.S. Patent 5,302,437 to Idei et al for reasons set forth in paragraph (9) of the Office Action. Reconsideration of this rejection is respectfully requested.

As described above, Yao '154 fails to disclose an ink-jet ink which contains a nonionic oil-soluble polymer as claimed herein. Idei '437 does not disclose or suggest that the ionic polymer of Yao '154 can be replaced with a nonionic polymer. Accordingly, the §103(a) rejection based on Yao '154 in view of Idei '437 should be withdrawn.

Claims 1-10, 12-14 and 16-20 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent 6,031,019 to Tsutsumi et al in view of U.S. Patent 6,344,497 to Meyrick et al and either JP '975 or JP '552 for the reasons set forth in

paragraph (10) of the Office Action. Reconsideration and withdrawal of this rejection is requested for the following reasons.

Tsutsumi '019 discloses an aqueous ink comprising a polymer emulsion. As the polymer, Tsutsumi '019 specifically discloses a vinyl polymer that requires a monomer component (ii) having "a salt forming group" (see column 5, lines 3-4 and column 6, from line 31). Further, Tsutsumi '019 specifically discloses a polyester having an acid value of 3-100 mg-KOH/g (see column 9, from line 1). The polyester having an acid value of greater than 3 mg-KOH/g means that the polyester has an acidic group (e.g., carboxylic group) corresponding to an amount per 1g of the polymer. Hence, the polyester is a polymer possessing an ionic group. The polymers required in the inks of Tsutsumi '019 are ionic as opposed to the nonionic polymers present in the inks set forth in the claims of this application.

The secondary art does not supply the aforementioned deficiency of Tsutsumi '019. Thus, Meyrick '497 discloses ink compositions which require the presence of water-dissipatable polyesters, i.e. polymers containing ionic groups such as sulfonate groups to impart water-dispersibility. There is no suggestion in Meyrick '497 which would motivate those of ordinary skill to replace the ionic polymers of Tsutsumi '019 with nonionic oil-soluble polymers as in the presently claimed invention.

The discloses of JP '975 or JP '552 likewise contain nothing which would lead those of ordinary skill into replacing the ionic polymers in the inks of Tsutsumi '019 with nonionic polymers as in the presently claimed invention. Therefore, it is submitted that the combined disclosures of Tsutsumi '019, Meyrick '497 and either JP '975 or JP '552 fails

to disclose or suggest the invention set forth in the present claims. As such, the §103(a) rejection based on these references should be withdrawn and such action is respectfully requested.

Claim 11 has been rejected under 35 U.S.C. §103(a) as unpatentable over Tsutsumi '019 in view of Meyrick '497 and either JP '975 or JP '552 and further in view of Suzuki '421 for the reasons set forth in paragraph (11) of the Office Action. Claim 15 was rejected under 35 U.S.C. §103(a) as unpatentable over Tsutsumi '019 in view of Meyrick '497 and either JP '975 or JP '552 and further in view of Idei '437 for reasons set forth in paragraph (12) of the Office Action. Reconsideration of these rejections is requested in view of the following remarks.

As discussed above, neither Suzuki '421 nor Idei '437 contains a disclosure or suggestion of using nonionic oil-soluble polymers in ink compositions. Their respective disclosures contain nothing which would provide motivation to replace the ionic polymers of Tsutsumi '019 with nonionic oil-soluble polymers. Accordingly, the §103(a) rejections based on Tsutsumi '019 in view of Meyrick '497 and either JP '975 or JP '552 further in view of Suzuki '421 or Idei '437 should be withdrawn.

disclose or suggest the invention set forth in the present claims. As such, the §103(a) rejection based on these references should be withdrawn and such action is respectfully requested.

Claim 11 has been rejected under 35 U.S.C. §103(a) as unpatentable over Tsutsumi '019 in view of Meyrick '497 and either JP '975 or JP '552 and further in view of Suzuki '421 for the reasons set forth in paragraph (11) of the Office Action. Claim 15 was rejected under 35 U.S.C. §103(a) as unpatentable over Tsutsumi '019 in view of Meyrick '497 and either JP '975 or JP '552 and further in view of Idei '437 for reasons set forth in paragraph (12) of the Office Action. Reconsideration of these rejections is requested in view of the following remarks.

As discussed above, neither Suzuki '421 nor Idei '437 contains a disclosure or suggestion of using nonionic oil-soluble polymers in ink compositions. Their respective disclosures contain nothing which would provide motivation to replace the ionic polymers of Tsutsumi '019 with nonionic oil-soluble polymers. Accordingly, the §103(a) rejections based on Tsutsumi '019 in view of Meyrick '497 and either JP '975 or JP '552 further in view of Suzuki '421 or Idei '437 should be withdrawn.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (703) 838-6683.

Respectfully submitted,

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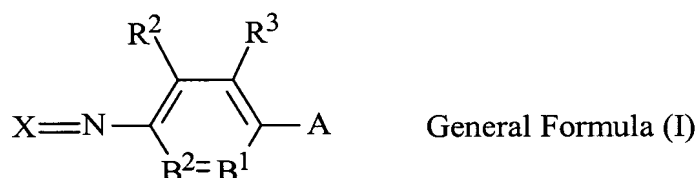
Date: December 11, 2002

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Marked-up Claims 1, 4, 9-12 and 14

Kindly replace claims 1, 4, 9-12 and 14 as follows:

1. (Amended) An ink-jet ink which contains a coloring composition [which is] formed by dispersing coloring particulates in a water-based medium, [and] the coloring particulates containing a nonionic oil-soluble polymer, a hydrophobic high boiling point organic solvent having a boiling point of 150°C or more, and an oil-soluble dye[.], wherein the oil-soluble dye is represented by the following general formula (I):



wherein, X represents the residue of a color coupler;

A represents -NR⁴R⁵ or a hydroxyl group;

R⁴ and R⁵ represent respectively independently a hydrogen atom, an aliphatic group, an aromatic group, or a heterocyclic group;

B¹ represents =C(R⁶)- or =N-;

B² represents -C(R⁷)= or -N=;

R², R³, R⁶, and R⁷ represent respectively independently a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, ^{SR51}, -

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Marked-up Claims 1, 4, 9-12 and 14

SR⁵², -CO₂R⁵³, -OCOR⁵⁴, -NR⁵⁵R⁵⁶, -CONR⁵⁷R⁵⁸, -SO₂R⁵⁹, -SO₂NR⁶⁰R⁶¹, -NR⁶²CONR⁶³R⁶⁴,
-NR⁶⁵CO₂R⁶⁶, -COR⁶⁷, -NR⁶⁸COR⁶⁹, or -NR⁷⁰SO₂R⁷¹.

R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵, R⁵⁶, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶, R⁶⁷, R⁶⁸,

R⁶⁹, R⁷⁰, and R⁷¹ represent respectively independently a hydrogen atom, an aliphatic group,
or an aromatic group; and

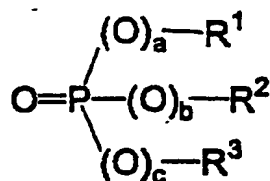
R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ optionally may be
connected to each other to form rings.

4. (Amended) An ink-jet ink according to claim 1, wherein the hydrophobic high boiling point organic solvent is at least one hydrophobic high boiling point organic solvent selected from the group consisting of hydrophobic high boiling point organic solvents represented by the following formulae [S-1] to [S-9]:

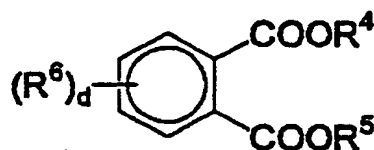
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Marked-up Claims 1, 4, 9-12 and 14

Formula [S-1]



Formula [S-2]



Formula [S-3]



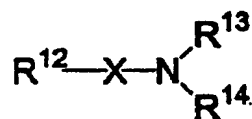
Formula [S-4]



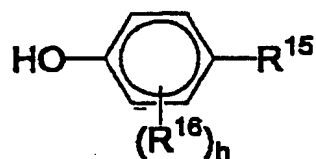
Formula [S-5]



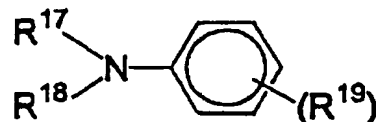
Formula [S-6]



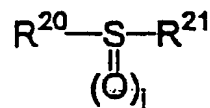
Formula [S-7]



Formula [S-8]



Formula [S-9]



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Marked-up Claims 1, 4, 9-12 and 14

wherein: in the formula [S-1], R^1 , R^2 and R^3 each independently represents [one of] an aliphatic group [and] ~~or~~ an aryl group, and a, b and c each independently represents 0 or 1;

in the formula [S-2], R^4 and R^5 each independently represents [one of] an aliphatic group [and] ~~or~~ an aryl group, R^6 represents [one of] a fluorine atom, chlorine atom, bromine atom, iodine atom, alkyl group, alkoxy group, aryloxy group, alkoxycarbonyl group [and] ~~or~~ aryloxycarbonyl group, d represents an integer from 0 to 3, and, [in a case] where d is more than 1, one R^6 may be different from another R^6 ;

in the formula [S-3], Ar represents an aryl group, e represents an integer from 1 to 6, and R^7 represents [one of] an e-valent hydrocarbon group [and] ~~or~~ a hydrocarbon group that is mutually bonded by an ether bond;

in the formula [S-4], R^8 represents an aliphatic group, f represents an integer from 1 to 6, and R^9 represents [one of] an f-valent hydrocarbon group [and] ~~or~~ a hydrocarbon group that is mutually bonded by an ether bond;

in the formula [S-5], g represents an integer from 2 to 6, R^{10} represents a g-valent hydrocarbon group other than an aryl group, and R^{11} represents [one of] an aliphatic group [and] ~~or~~ an aryl group;

in the formula [S-6], R^{12} , R^{13} and R^{14} each independently represents [one of] a hydrogen atom, aliphatic group [and] ~~or~~ aryl group, X represents [one of] -CO- [and] ~~or~~ -

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Marked-up Claims 1, 4, 9-12 and 14

SO₂⁻, and [one of] a pair R¹² and R¹³ [and] ~~or~~ a pair R¹³ and R¹⁴ ~~optionally~~ may bond together mutually to form a ring;

in the formula [S-7], R¹⁵ represents [one of] an aliphatic group, alkoxycarbonyl group, aryloxy carbonyl group, alkylsulfonyl group, arylsulfonyl group, aryl group [and] ~~or~~ cyano group, R¹⁶ represents [one of] a fluorine atom, chlorine atom, bromine atom, iodine atom, aliphatic group, aryl group, alkoxy group [and] ~~or~~ aryloxy group, h represents an integer from 0 to 3, and [in a case] where h is more than 1, one R¹⁶ may be different [form] ~~from~~ another R¹⁶;

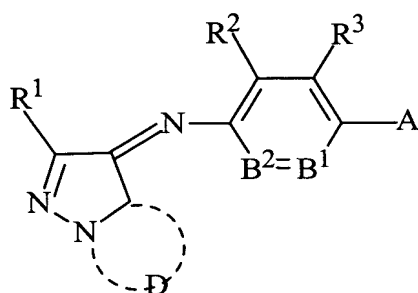
in the formula [S-8], R¹⁷ and R¹⁸ each independently represents [one of] an aliphatic group [and] ~~or~~ an aryl group, R¹⁹ represents [one of] a fluorine atom, chlorine atom, [brorine] ~~bromine~~ atom, iodine atom, aliphatic group, aryl group, alkoxy group [and] ~~or~~ aryloxy group, i represents an integer from 0 to 4, and [in a case] when i is more than 1, one R¹⁹ may be different from another R¹⁹; ~~and~~

in the formula [S-9], R²⁰ and R²¹ each independently represents an aliphatic group or aryl group, and j represents 1 or 2.

9. (Amended) An ink-jet ink according to claim [2] 1, wherein the oil-soluble dye which is represented in said general formula (I) is a compound which is represented in the following general formula (II):

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Marked-up Claims 1, 4, 9-12 and 14



General Formula (II)

wherein, R², R³, A, B¹, and B² are synonymous with R², R³, A, B¹, and B² in said general formula (I);

R¹ represents [one of] a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, -OR¹¹, SR¹², -CO₂R¹³, -OCOR¹⁴, -NR¹⁵R¹⁶, -CONR¹⁷R¹⁸, -SO₂R¹⁹, -SO₂NR²⁰R²¹, -NR²²CONR²³R²⁴, -NR²⁵CO₂R²⁶, COR²⁷, -NR²⁸COR²⁹, [and] or NR³⁰SO₂R³¹;

R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²², R²³, R²⁴, R²⁵, R²⁶, R²⁷, R²⁸, R²⁹, R³⁰, and R³¹ represent respectively independently [one of] a hydrogen atom, an aliphatic group[, and] or an aromatic group;

D represents an atom group which forms [one of] a five-membered nitrogen-containing heterocyclic ring [and] or a six-membered nitrogen-containing heterocyclic ring which optionally may be substituted [for at least one of] with an aliphatic group, an

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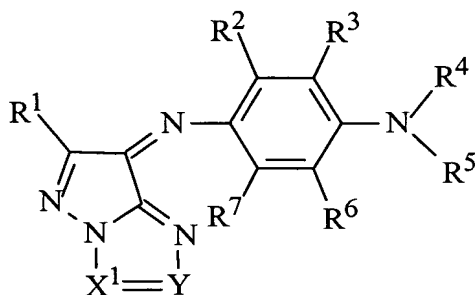
Marked-up Claims 1, 4, 9-12 and 14

aromatic group, a heterocyclic group, a cyano group, $-OR^{81}$, $-SR^{82}$, $-CO_2R^{83}$, $-OCOR^{84}$, $-NR^{85}R^{86}$, $-CONR^{87}R^{88}$, $-SO_2R^{89}$, $-SO_2NR^{90}R^{91}$, $-NR^{92}CONR^{93}R^{94}$, $-NR^{95}CO_2R^{96}$, $-COR^{97}$, $-NR^{98}COR^{99}$ [, and] or $-NR^{100}SO_2R^{101}$;

the heterocyclic ring optionally may further form a condensed ring with another ring; and

R^{81} , R^{82} , R^{83} , R^{84} , R^{85} , R^{86} , R^{87} , R^{88} , R^{89} , R^{90} , R^{91} , R^{92} , R^{93} , R^{94} , R^{95} , R^{96} , R^{97} , R^{98} , R^{99} , R^{100} , and R^{101} represent respectively independently [one of] a hydrogen atom, an aliphatic group [and] or an aromatic group.

10. (Amended) An ink-jet ink according to claim 9, wherein the compound which is represented in said general formula (II) is a compound which is represented in the following general formula (III).



General Formula (III)

wherein, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 are synonymous with R^1 , R^2 , R^3 , R^4 , R^5 , R^6 and R^7 in said formula (II);

X^1 and Y represent respectively independently [one of] $-C(R^8) =$ [and] or $-N =$;

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Marked-up Claims 1, 4, 9-12 and 14

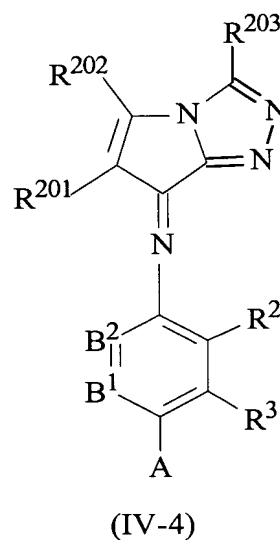
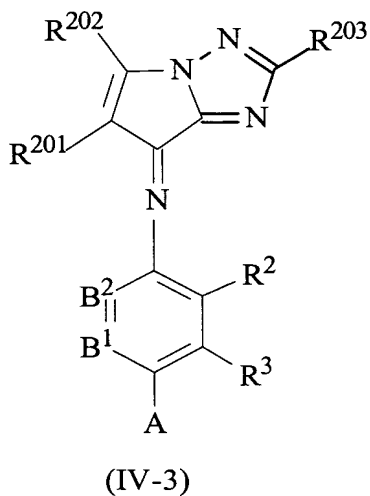
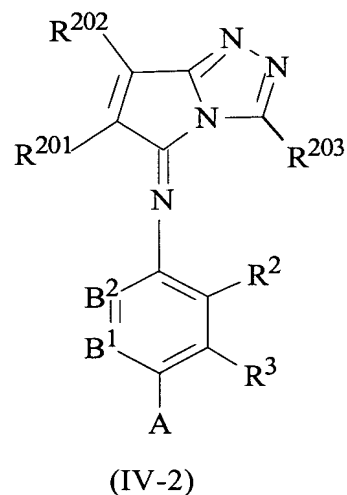
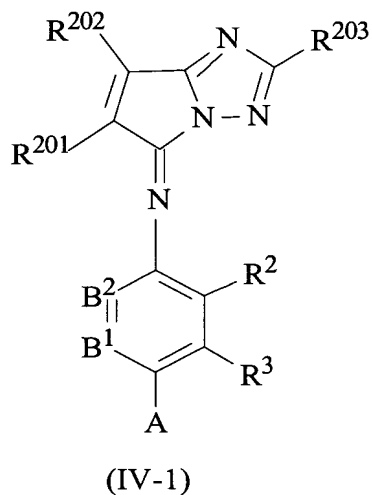
R⁸ represents [one of] a hydrogen atom, an aliphatic group[, and] ~~or~~ an aromatic group; and

one of X¹ [and] ~~or~~ Y is always -N=, and X¹ and Y are -N= at different times.

11. (Amended) An ink-jet ink according to claim [2] 1, wherein the oil-soluble dye [which is represented in said general] ~~of~~ formula (I) is at least one of compounds [which are] represented in the following general formulas (JV-1) to (IV-4):

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Marked-up Claims 1, 4, 9-12 and 14



wherein, A, R², R³, B¹, and B² are synonymous with A, R², R³, B¹, and B² in said general formula (I);

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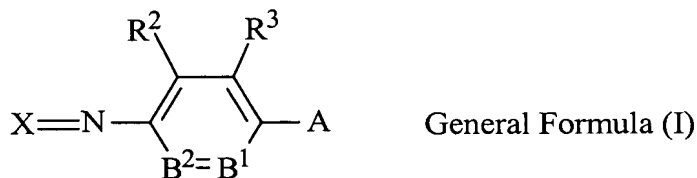
Marked-up Claims 1, 4, 9-12 and 14

R^{201} , R^{202} , and R^{203} represent respectively independently [one of] a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, $-OR^{11}$, $-SR^{12}$, $-CO_2R^{13}$, $-OCOR^{14}$, $-NR^{15}R^{16}$, $-CONR^{17}R^{18}$, $-SO_2R^{19}$, $-SO_2NR^{20}R^{21}$, $-NR^{22}CONR^{23}R^{24}$, $-NR^{25}CO_2R^{26}$ - COR^{27} , $-NR^{28}COR^{29}$, [and] or $-NR^{30}SO_2R^{31}$;

R^{11} , R^{12} , R^{13} , R^{14} , R^{15} , R^{16} , R^{17} , R^{18} , R^{19} , R^{20} , R^{21} , R^{22} , R^{23} , R^{24} , R^{25} , R^{26} , R^{27} , R^{28} , R^{29} , R^{30} , and R^{31} represent respectively independently [one of] a hydrogen atom, an aliphatic group[, and] or an aromatic group; and

R^{201} and R^{202} optionally may be combined with each other [and] to form a ring structure.

12. (Amended) A coloring composition [which is] formed by dispersing coloring particulates in a water-based medium, [and] the coloring particulates containing a nonionic oil-soluble polymer, a hydrophobic high boiling point organic solvent having a boiling point of 150°C or more, and an oil-soluble dye[.], wherein the oil-soluble dye is represented by the following general formula (I):



wherein, X represents the residue of a color coupler;

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Marked-up Claims 1, 4, 9-12 and 14

A represents $-NR^4R^5$ or a hydroxyl group;

R^4 and R^5 represent respectively independently a hydrogen atom, an aliphatic group, an aromatic group, or a heterocyclic group;

B^1 represents $=C(R^6)-$ or $=N-$;

B^2 represents $-C(R^7) =$ or $-N=$;

R^2 , R^3 , R^6 , and R^7 represent respectively independently a hydrogen atom, a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, $-SR^{51}$, $-SR^{52}$, $-CO_2R^{53}$, $-OCOR^{54}$, $-NR^{55}R^{56}$, $-CONR^{57}R^{58}$, $-SO_2R^{59}$, $-SO_2NR^{60}R^{61}$, $-NR^{62}CONR^{63}R^{64}$, $-NR^{65}CO_2R^{66}$, $-COR^{67}$, $-NR^{68}COR^{69}$, or $-NR^{70}SO_2R^{71}$;

R^{51} , R^{52} , R^{53} , R^{54} , R^{55} , R^{56} , R^{57} , R^{58} , R^{59} , R^{60} , R^{61} , R^{62} , R^{63} , R^{64} , R^{65} , R^{66} , R^{67} , R^{68} , R^{69} , R^{70} , and R^{71} represent respectively independently a hydrogen atom, an aliphatic group, or an aromatic group; and

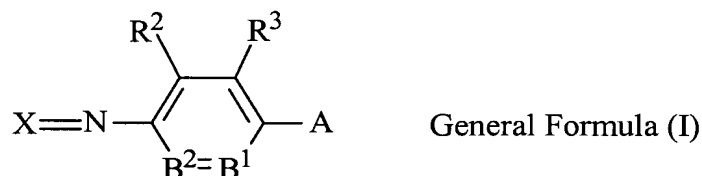
R^2 and R^3 , R^3 and R^4 , R^4 and R^5 , R^5 and R^6 , and R^6 and R^7 optionally may be connected to each other to form rings.

14. (Amended) An ink jet recording method, in which recording is carried out using an ink-jet ink which contains a coloring composition, the coloring composition being formed by dispersing coloring particulates in a water-based medium, [and] the coloring particulates containing a nonionic oil-soluble polymer, a hydrophobic high boiling point

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Marked-up Claims 1, 4, 9-12 and 14

organic solvent having a boiling point of 150°C or more, and an oil-soluble dye[.], wherein
the oil-soluble dye is represented by the following general formula (I):



wherein, X represents the residue of a color coupler;

A represents -NR⁴R⁵ or a hydroxyl group;

R⁴ and R⁵ represent respectively independently a hydrogen atom, an aliphatic group,
an aromatic group, or a heterocyclic group;

B¹ represents =C(R⁶)- or =N-;

B² represents -C(R⁷) = or -N=;

R², R³, R⁶, and R⁷ represent respectively independently a hydrogen atom, a halogen
atom, an aliphatic group, an aromatic group, a heterocyclic group, a cyano group, -^{SR51}, -
SR⁵², -CO₂R⁵³, -OCOR⁵⁴, -NR⁵⁵R⁵⁶, -CONR⁵⁷R⁵⁸, SO₂R⁵⁹, -SO₂NR⁶⁰R⁶¹, -NR⁶²CONR⁶³R⁶⁴,
-NR⁶⁵CO₂R⁶⁶, -COR⁶⁷, -NR⁶⁸COR⁶⁹, or -NR⁷⁰SO₂R⁷¹;

R⁵¹, R⁵², R⁵³, R⁵⁴, R⁵⁵, R⁵⁶, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, R⁶², R⁶³, R⁶⁴, R⁶⁵, R⁶⁶, R⁶⁷, R⁶⁸,
R⁶⁹, R⁷⁰, and R⁷¹ represent respectively independently a hydrogen atom, an aliphatic group,
or an aromatic group; and

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Marked-up Claims 1, 4, 9-12 and 14

R² and R³, R³ and R⁴, R⁴ and R⁵, R⁵ and R⁶, and R⁶ and R⁷ optionally may be
connected to each other to form rings.